

STRATEGIES FOR PROMOTING HEALTHY WEIGHT AND HEALTHY LIVES FOR CHILDREN IN THE DELTA

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Abstract: One in three children in Mississippi have weights that increase their risks for early onset of chronic diseases such as diabetes, high blood pressure, heart attacks, arthritis and consequent early disability and death. Children in school today are projected to be the first generation of Americans to die at an earlier age than their parents' generation. Many factors have contributed to this "obesity epidemic" and multiple strategies are needed to counter its impact. A collaboration of Agricultural Research Service and six universities has led to research studies in Washington County, MS and Phillips County AR that have addressed two critical elements in schools, summer day camps, and after-school programs. Major efforts have focused on providing children 1) exposure to new fruits and vegetables to promote willingness to try new foods and healthier diets and 2) encouraging physical activities that are fun and avoid having to be a "winner." These efforts combined with the promotion of improved literacy skills can lead to a better economic future and reduce the health burdens associated with poverty. Multiple components efforts are essential for longer and healthier lives for the current and future generations of school children in the Delta. All communities need to become involved in health promotion of their youth.

Keywords: obesity; childhood obesity; summer camps; food exposure; physical activity

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Childhood and adolescent obesity has become perhaps the greatest health threat for children in the United States and other industrialized countries. Over half of morbidly obese adults (Body Mass Index > 40) became obese by age 8 (Dietz & Robinson, 2008). One out of every three children is overweight, a status linked to increased risks for diseases likely to reduce life expectancy (DeMattia & Denney, 2008). Today's children are on track to be the first generation of Americans to live shorter, less healthier lives than their parents with approximately 25 million children already overweight or obese (Ogden, et al., 2006; Trust for America's Health, 2007). No where is this truer than in the Lower Mississippi Delta region in the States of Arkansas, Louisiana, and Mississippi. In 2007, Mississippi led the nation in rate of adult obesity (30.6% +/-0.9), rate of physical inactivity (31.6% +/- 0.9), rate of poverty (18.3%), and rate of adult hypertension (32.7% +/- 1.0) and is second in percentage of adults with diabetes (10.2%, +/-0.5) (Trust for America's Health, 2007). Louisiana is fourth in adult obesity (28.2% +/-0.9), second in rate of physical inactivity (31.3% (+/- 0.9), fourth in rate of poverty (17.4%) ninth in rate of adult hypertension (28.6% +/- 0.9), and seventh in rate of diabetes (8.9% +/- 0.5). While Arkansas appears overall to fare a little better with being eight in rate of obesity (27.0% +/- 0.9), seventh in rate of physical inactivity (28.6% +/- 0.9), seventh in rate of poverty (15.6%), and fifth in rate of adult hypertension

(29.8% +/- 0.9), these data may mask the obesity, physical inactivity, poverty, and hypertension, all diseases commonly found in those who live in the rural Delta and who have minority status. With Delta adults currently experiencing greater rates of obesity and its related diseases (Smith et al., 1999; Casey et al., 2004; Stuff et al., 2006), how much more disease burdened will the current children experience in adulthood? In 2001, Delta children in food-insufficient, low incomes families were noted to have more overweight children, who consumed less fruits and spent more time watching television (Casey, et al., 2001). The purpose of this paper is to present some strategies that have been recommended by national expert committees and describe how some of these strategies have been implemented in selected rural communities.

Overweight rates of high school students by race in the U. S. are 16.8% for Hispanic American students, 16.0% for African American students and 11.8% for Caucasian American students (Trust for America's Health, 2007). In 2003, Act 1220 was passed in Arkansas mandating the assessment of childhood and adolescent obesity by standardized measurements of heights and weights of public school students in grades K-12 and calculation of Body Mass Index (BMI) for Age. In the five years since, 38% of 175,000 Arkansas school children were found to be overweight (obese) or at risk of overweight (Arkansas Center for Health Improvement, 2008). Gender and ethnicity differences were found. Fifty percent of Hispanic males and 44% of African American females were in the two highest risk categories as were 38% of Native Americans, 36% of Caucasian students and 30% of Asian students. While Delta-specific data have not yet been released, children in the Arkansas Delta are likely to have far higher rates of obesity due to a higher percentage of minority students than in other regions of the state.

ARKANSAS STRATEGIES: PUBLIC SCHOOLS

Act 1220 was itself a strategy to promote healthier weights by raising awareness of the prevalence of unhealthy weights among Arkansas school children (Arkansas Center for Health Improvement, 2007). Initially, efforts to assess BMI and to create a Child Health Report Card to be sent to parents were met with resistance and objections as being potentially embarrassing to children if these data were placed on the usual report cards sent home to parents. A compromise was to establish a separate Child Health Report Card mailed directly to the parents. Parental and adolescent comfort with the BMI assessment and reporting process has increased over the past 4 years along with changes in policies about prohibiting or limiting the sale of "junk foods" in cafeteria and vending machines. The majority of schools now have policies regarding the content of vending machines and that students be offered low-fat milk options (Arkansas Center for Health Improvement, 2009). Parents appear to be more likely to limit "junk food" and screen time in the home in order to promote more physical activity. On the other hand, the academic achievement

mandates have often meant greater competition for time and dollars within these schools. During the 2007-2008 session of the Arkansas General Assembly passed legislation reducing the physical activity requirement of Act 1220 and limited BMI data collection to only even number grades (K, 2, 4, 6, 8, and 10). Nevertheless the greater awareness of healthy weights seems to have stemmed the steep rise in obesity rates in Arkansas children over the past 4 years.

ARKANSAS STRATEGIES: SUMMER DAY CAMPS

The Delta NRI entered into a series of small feasibility studies at a summer day camp that had been held annually for over 20 years with predominantly African American campers. In 2003 a series of community workshop meetings were held in Arkansas, Louisiana, and Mississippi in which the Comprehensive Participatory Planning and Evaluation Process was used to identify the community residents' perception of factors that influenced nutrition-related diseases (Ndirangu et al., 2008). One such cultural factor was young people's unwillingness to try new foods. This led to a series of small studies to assess willingness to try new foods. The first study (2005) was designed as a summer intern research experience for two honor graduates of the local public high school as part of the ARS, USDA effort to encourage careers in science research. The second study was modified to a snack feeding study (WillTry) and to serve as a rural public health capstone experience for a graduate student who assisted in manual development, intern training, and daily supervision of the interns (2006). The third study was incorporation of the WillTry feeding study as one component of a multi-component pilot for obesity prevention that involved a structured physical activity curriculum, nutrition education classes, fruit/vegetable snacks (pre and post weighed for actual consumption), literacy skills development, and self-esteem promotion. Pre and post data collection consisted of: measured heights and weights, Body Mass Index calculation, 24-hour recalls, MyPyramid quiz, physical activity recalls, Willingness to Try New Foods (WillTry) interview, screen time questionnaire, and social interactions assessment. The fourth year (2007) expanded the Multi-component Obesity Prevention protocol to include blood draws to assess vitamin status and to a second site that served as a control for the WillTry snack feeding. From this series of study, identification of effective and ineffective tools and methods in promoting healthy weights in campers is beginning to emerge.

MISSISSIPPI STRATEGIES: SCHOOL BASED

In 2006 a six-week pilot study offered fruit/vegetable snacks in the afternoon as part of the regular school day for fourth-sixth grade students in a rural predominantly African American elementary school (McCabe-Sellers et al., 2008a, 2008b). Children came from six rural communities. Snacks were pre and post weighed to allow assessment of actual intake. Fresh choices were

offered as much as possible. Canned fruits provided a backup to the fresh choices when delivery dates were not favorable, e.g. the Monday after Thanksgiving vacation. Teachers brought their classes to the cafeteria for a 20-minute period and assisted the research assistants in distributing the pre-weighed snacks according to assigned student numbers and gathering the containers and refuse for post weighing. Snacks were also provided to the teachers who ate along side their classes. Fact sheets about the specific fruits and vegetables such as country of origin, harvest season, how to tell if ripe, etc. were given the teachers who were encouraged to incorporate these into lesson plans. Teachers were positive about the students' enjoyment of the snacks as well as their tasting of something new (e.g., fresh mandarin oranges). Kiwi fruit was an immediate hit and were added to the cafeteria menu at the end of the study. Pre-sliced apple slices as snacks were more completely consumed than whole apples served in the cafeteria because many students didn't want to eat the peel. Vegetables were not as readily consumed on this one time serving, but most students tried at least a bite. Fruits were more popular. Recognition of a food meant it was more likely to be consumed in its entirety. Children tended to be willing to actually consumed foods than initially expressed. Exposing children to a greater variety of foods in a school setting where classmates and teachers are tasting these foods offers a strategy that may help overcome lack of exposure in the home. This study was carried out in a school with 100% free school breakfast and lunch that demonstrate the importance of this route of encouraging more fruits and vegetables in these high poverty, high risk populations.

MISSISSIPPI STRATEGIES: SUMMER PROGRAMS

Sports are an important element in small rural towns where the majority of residents may be in attendance on a Friday night to see a football or basketball game. Few, if any, organized sports or physical activity programs exist during the summer vacation. Sports that require more equipment, coaching, or special playing fields may not be economical viable. One organized sport that can be played by boys and girls together, requires limited equipment and very basic playing field preparation is soccer. Soccer, better known on the world scene as football, is seldom found in traditional rural communities.

Until recently, televised soccer games, especially the World Cup, were seldom seen on American television, partly due to time differences. In Mississippi, however, an association has been formed to assist communities in setting up youth soccer, in training coaches, in laying out fields, and in helping children find out how much fun playing soccer can be. A group of collaborators from USDA, ARS Delta Nutrition Research Initiative (Delta NRI), Alcorn State University, Mississippi State University Extension, University of Southern Mississippi, and Hollandale NRI planned and implemented a summer program introducing soccer to children ages 4-12, hired high school students to serve as assistant coaches, recruited college students and parents to serve as coaches, laid

out a soccer field in a city park, and purchased the portable goals, nets, and soccer balls (Strickland et al., 2007). Over 120 children participated in the soccer practices and their families came for the Saturday games. Teams were named after fruits and vegetables, e.g. Mighty Oranges, Blastin' Berries, Powerful Peas, etc. Children were encouraged to drink water, snack on orange wedges at games, and to try other fruits and vegetables snacks on practice days. After a second summer program with well over 100 children, the equipment and the program was moved to the local elementary school with plans to create a permanent soccer program. These types of programs encourage children and adults to learn new skills, have fun, and work together to create healthier communities. Few children will go on to become professional athletes but all can develop interest and skills in sports that they can take forward in their adult lives and in their future children's life. Some European countries have soccer leagues for adults that are active into their seventh and eighth decades. Getting families out to city parks or school grounds to watch, cheer, and may be even try soccer individually can mean a more active life, even in limited resource communities.

FOCUS ON NUTRITION

The promotion of more fruits and vegetables in the rural Delta is not without its challenges (McCabe-Sellers et al., 2009). Children may be much more willing to actually try new foods offered to them after an initial negative response (Onufrak et al., 2009). Simple supply of quality fresh fruits and vegetables may not be readily available in most small rural communities (Connell et al, 2007). Availability of low fat milk products is also a concern. (Staggs et al., 2005; McCabe-Sellers et al., 2005). Encouraging consumption of fruits canned in fruit juice or water packed or vegetables frozen or canned with little or no salt may be a less costly means of promoting better diets, especially in winter. Developing habits of children eating fruits and vegetables means more nutrient dense diets and less caloric density that lessen the risk of obesity and obesity-related diseases. Promoting dairy foods may also offer protection from obesity and osteoporosis as well (McCabe-Sellers et al., 2008). Enjoyment of healthy foods is a pleasure and provides the potential for a longer and more active life for ourselves and our children.

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